AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1.(currently amended) A method for scheduling the transmission of a data stream in a wireless communications network ~~having at least one access point (QAP) (103) and at least one station (WSTA) (110, 112, 114)~~, the method comprising ~~the steps of~~:

receiving a request to send at least one data stream for transmission ~~from at least one WSTA (110, 112, 114) by said QAP (103)~~;

granting~~, by said QAP (103),~~ said request to send said at least one data stream;

transmitting~~, by said at least one WSTA (110, 112, 114),~~ a medium access control (MAC) frame comprised of a set of parameters defining the characteristics of said at least one data stream; and~~,~~

calculating~~, by said QAP (103),~~ service and transmission times according to a schedule algorithm ~~for servicing said at least one WSTA (110, 112, 114)~~ utilizing said parameters.

2. (original) The method of Claim 1, wherein said schedule algorithm is operative to schedule the transmission of said at least one data stream at said calculated service and transmission times.

3. (currently amended) The method of Claim 1, further comprising ~~the step of~~ generating~~, at said QAP (103),~~ polling frames or downlink frames at said calculated service and transmission times ~~allocated to said at least one WSTA(110, 112, 114)~~ for transmission of said at least one data stream.

4. (original) The method of Claim 1, wherein said at least one data stream is parameterized traffic stream.

5. (currently amended) The method of Claim 1, wherein the parameters of said MAC frame ~~includes:~~ include Mean Data Rate (ρ_i), Nominal MSDU Size (L_i), and Maximum Service Interval or Delay Bound (D_i).

6. (currently amended) The method of Claim 1, wherein the ~~step of~~ calculating said service and transmission times further comprises ~~the steps of:~~ determining a Service Interval (SI) and determining a TXOP duration for said SI.

7. (currently amended) The method of Claim 6, wherein the ~~step of~~ determining said SI further comprises ~~the steps of~~:

~~selecting~~ calculating a ~~number that is lower than said~~minimum interval of all Maximum Service Intervals for each of said at least one streams, and

~~selecting a~~calculating the SI by choosing a number that is lower than said calculated ~~SI~~ minimum interval and is a submultiple of a beacon interval.

8. (currently amended) The method of Claim 6, wherein the ~~step of~~ determining said TXOP uses additional parameters: Transmission Rate (R_i), Size of Maximum MSDU (M_i), and Overheads in Time units (O_i).

9. (currently amended) The method of Claim 6, wherein the ~~step of~~ determining said TXOP duration further comprises ~~the step of:~~

calculating the number of MSDUs (N_i) that arrived at said Mean Data Rate (ρ_i), during said SI, where (L) is the nominal MSDU Size according to the following equation:

$$N_i = \left\lceil \frac{SI \times \rho_i}{L_i} \right\rceil$$

calculating said $TXOP_i$ duration as a maximum of (i) time to transmit number of MSDUs (N_i) frames at ~~said~~ Transmission Rate (R_i), (ii) time to transmit one maximum size MSDU (M) at said R_i, and (iii) Overhead in time units (O) according to the following equation:

$$TXOP_i = \max\left\{ \frac{N_i \times L_i}{R_i} + O, \frac{M}{R_i} + O \right\}$$

10. (currently amended) The method of Claim 5, wherein the ~~step of~~ calculating said service and transmission times are performed if an admission control condition is satisfied, as follows:

$$TXOP_{i+1}/D_{i+1} + \sum_{i=1}^{k} TXOP_i / D_i \leq 1, \text{ where}$$

$$TXOP_i = N_i L_i / R_i + O \text{ and } N_i = D_i \rho_i / L_i,$$

where R_i represents a transmission Rate, N_i represents number of frames arriving during D_i, ~~and~~ O represents overheads in time units, and i+1 stands for the newly arriving stream and the summation index counts for the streams already admitted by the QAP.

11.(currently amended) A method for scheduling the transmission of a data stream in a wireless communications network having at least one access point (QAP) ~~(103)~~ and at least one station (WSTA) ~~(110, 112, 114)~~, the method comprising ~~the steps of~~:

determining, at said QAP ~~(103)~~, whether at least one data stream is originated from said at least one WSTA~~(110, 112, 114)~~ based on a MAC frame comprised of a set of parameters defining the characteristics of said at least ~~one upstream sidestream or downstream traffic~~data stream;

computing service and transmission times, at said QAP ~~(103)~~, for servicing said at least one WSTA~~(110, 112, 114)~~ in accordance with a schedule algorithm utilizing said parameters; and,

transmitting, by said at least one WSTA~~(110, 112, 114)~~, said at least one data stream at said computed service and transmission times.

12. (original) The method of Claim 11, wherein said at least one data stream is parameterized traffic stream.

13. (currently amended) The method of Claim 11, wherein the parameters of said MAC frame ~~includes:~~ include Mean Data Rate (ρ_i), Nominal MSDU Size (L_i), and Maximum Service Interval or Delay Bound (D_i).

14.(currently amended) The method of Claim 11, wherein the ~~step of~~ calculating said service and transmission times further comprises ~~the steps of:~~ determining a Service Interval (SI) and determining a TXOP duration for said SI.

15. (currently amended) The method of Claim 14, wherein the ~~step of~~ determining said SI further comprises ~~the steps of~~:

~~selecting~~ calculating a ~~number that is lower than said~~ minimum interval of all Maximum Service Intervals, and

calculating the SI by choosing a~~selecting a~~ number that is lower than said minimum interval~~calculated SI~~ and is a submultiple of a beacon interval.

16. (currently amended) The method of Claim 14, wherein the ~~step of~~ determining said TXOP uses additional parameters: Transmission Rate (R_i), Size of Maximum MSDU (M_i), and Overheads in Time units (O_i).

17. (currently amended) The method of Claim 14, wherein the ~~step of~~ determining said TXOP duration further comprises ~~the step of~~:

calculating the number of MSDUs (N_i) that arrived at said Mean Data Rate (ρ_i), during said SI, where (L) is the nominal MSDU Size according to the following equation:

$$N_i = \left\lceil \frac{SI \times \rho_i}{L_i} \right\rceil$$

calculating said $TXOP_i$ duration as a maximum of (i) time to transmit number of MSDUs (N_i) frames at ~~said~~ Transmission Rate (R_i), (ii) time to transmit one maximum size MSDU (M) at said R_i, and (iii) Overheads in time units (O) according to the following equation:

$$TXOP_i = \max\left\{ \frac{N_i \times L_i}{R_i} + O, \frac{M}{R_i} + O \right\}$$

18. (currently amended) A system for seamlessly granting polls for upstream and/or sidestream traffic while simultaneously sending downstream traffic from said (AP) ~~(103)~~ to said at least one WSTA ~~(110, 112, 114)~~, the system comprising:

a memory for storing a computer-readable code; and,

a processor operatively coupled to said memory, said processor configured to:

(1) receive a request to send at least one data stream for transmission from at least one WSTA~~(110, 112, 114)~~ by said QAP ~~(103)~~;

(2) grant said request to send said at least one data stream by said WSTA~~(110, 112, 114)~~ or QAP ~~(103)~~;

(3) transmit, by said at least one WSTA~~(110, 112, 114)~~, a MAC frame comprised of a set of parameters defining the characteristics of said at least one data stream; and,

(4) calculate, by said QAP ~~(103)~~, service and transmission times according to a schedule algorithm for servicing said at least one WSTA~~(110, 112, 114)~~ utilizing said parameters.

19. (currently amended) The system of claim ~~19~~ 18, wherein the parameters of said MAC frame includes: Mean Data Rate (ρ_i), Nominal MSDU Size (L_i), and Maximum Service Interval or Delay Bound (D_i).

20. (currently amended) A system for scheduling the transmission of a data stream in a wireless communications network having at least one access point (QAP) ~~(103)~~ and at least one station (WSTA) ~~(110, 112, 114)~~, the system comprising:

means for determining, at said QAP ~~(103)~~, whether at least one data stream is originated from said at least one WSTA~~(110, 112, 114)~~ based on a MAC frame comprised of a set of parameters defining the characteristics of said at least one data stream;

means for ~~computing~~ calculating service and transmission times, at said QAP ~~(103)~~, for servicing said at least one WSTA~~(110, 112, 114)~~ in accordance with a schedule algorithm utilizing said parameters; and,

means for transmitting, by said at least one WSTA~~(110, 112, 114)~~, said at least one data stream at said computed service and transmission times.

21. (currently amended) The system of claim 20, wherein the parameters of said MAC frame ~~includes:~~ include Mean Data Rate (ρ_i), Nominal MSDU Size (L_i), and Maximum Service Interval or Delay Bound (D_i).

22. (original) The system of Claim 20, wherein the means for calculating said service and transmission times further comprises means for determining a Service Interval (SI) and a TXOP duration for said SI.

23. (currently amended) The method of Claim 22, wherein the ~~step of~~ means for ~~determining said SI comprises the steps of:~~

calculates a minimum interval of all~~selecting a number that is lower than said~~ Maximum Service Intervals, and

calculates the SI by choosing ~~selecting~~ a number that is lower than said ~~calculated SI~~minimum interval and is a submultiple of the beacon interval.

24. (currently amended) The system of Claim 22, wherein the ~~step of~~ means for determining ~~said TXOP~~ uses additional parameters: Transmission Rate (R_i), Size of Maximum MSDU (M_i), and Overheads in Time units (O_i).

25. (currently amended) The system of Claim 24, wherein said TXOP duration is determined by:

$$N_i = \left\lceil \frac{SI \times \rho_i}{L_i} \right\rceil$$

calculating the number of MSDUs (N_i) that arrived at said Mean Data Rate (ρ_i), during said SI, where (L) is the nominal MSDU Size according to the following equations:

$$N_i = \left\lceil \frac{SI \times \rho_i}{L_i} \right\rceil$$

calculating said $TXOP_i$ duration as a maximum of time to transmit number of MSDUs (N_i) frames at ~~said~~ Transmission Rate (R_i), and time to transmit one maximum size MSDU (M) at said R_i, and Overheads in time units (O) according to the following equation:

$$TXOP_i = \max\left(\frac{N_i \times L_i}{R_i} + O, \frac{M}{R_i} + O \right)$$

26.(currently amended) The system of Claim ~~21~~ 20, wherein the ~~step of~~ means for calculating said service and transmission times ~~are performed~~ is used if an admission control condition is satisfied, as follows:

$$TXOP_{i+1}/D_{i+1} + \sum_{i=1}^{k} TXOP_i / D_i \leq 1, \text{ where}$$

$$TXOP_i = N_i L_i / R_i + O \text{ and } N_i = D_i \rho_i / L_i,$$

where R_i represents a transmission Rate, N_i represents number of frames arriving during D_i, ~~and~~ O represents overheads in time units, and i+1 stands for the newly arriving stream and the summation index counts for the streams already admitted.